ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 18, Issue, 02, pp.36227-36232, February, 2026
DOI: https://doi.org/10.24941/ijcr.50144.02.2026

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

EVALUATING NON-PHARMACOLOGICAL INTERVENTIONS: THE IMPACT OF CHAIR AEROBICS VS. YOGASANA ON PRIMARY DYSMENORRHEA AND QUALITY OF LIFE- AN EXPERIMENTAL STUDY

*** Avani Pal**

Professor, Department of Physiotherapy, Tilak Maharashtra Vidhyapeeth, Pune, India

ARTICLE INFO

Article History:
Received 25th November, 2025
Received in revised form
20th December, 2025
Accepted 18th January, 2026
Published online 27th February, 2026

Keywords:
Primary Dysmenorrhea,Non-Impact Chair Aerobics, Yogasana, Quality of life.

Corresponding author:* **Avani Pal

ABSTRACT

Background: Primary dysmenorrhea is a common gynecological condition among females of reproductive age and is often associated with significant physical discomfort, psychological distress, and reduced quality of life. Non-pharmacological interventions such as exercise-based therapies have gained importance due to their safety, accessibility, and holistic benefits. 42% of young females reported limitation in daily activities and 17% reported absenteeism. Despite its high prevalence many females do not seek medical advice and it is left untreated. **Objective:** The main purpose of this study is to find out- 1) To evaluate the effect of chair aerobics and yogasanas on pain in females with primary dysmenorrhea. 2) To evaluate the effect of chair aerobics and yogasanas on quality of life in females with primary dysmenorrhea. **Methods:** A total sample size – 80 females diagnosed with Primary Dysmenorrhea with 18-25 years of age were selected and divided into two intervention groups.Group A received non-impactchair aerobics exercises, while Group B performed selected yogasanas. Both interventions were administered for a specified duration over consecutive menstrual cycles. Quality of life was assessed using a validated questionnaire before and after the intervention period. **Outcome Measures:** The data was analyzed by NPRS for pain and WaLIDD Questionnaire for severity of dysmenorrhea. Quality of life and pain-related outcomes were assessed using validated outcome measures including the Short Form-36 (SF-36) questionnaire. Pre- and post-intervention scores were statistically analyzed. **Results:** The study shows significant reductions in pain (39.9%) and WaLIDD 42.4% in Group- A & 48.4% in Group- B) scores and improvement in quality of Life (72.1%) (SF-36) Scores.Clinically significant improvements in quality-of-life domains including physical functioning, bodily pain, vitality, and emotional well-being. **Conclusion:**The study provides compelling evidence that chair aerobics and yogasana are both effective non- pharmacological intervention for managing primary dysmenorrhea that improves quality of life.

Citation: Avani Pal, 2026. "Evaluating non-pharmacological interventions: the impact of chair aerobics vs. yogasana on primary dysmenorrhea and quality of life- an experimental study". ***International Journal of Current Research, 18, (02), 36227-36232.***

INTRODUCTION

Dysmenorrhea is defined as painful menstrual cramps of uterine origin, and considered as one of the most common gynecological disorders among females of childbearing age[1]. Although it is a common condition, it is usually underdiagnosed, since most females do not seek medical attention[2,3]. In accordance with its pathophysiology, it is classified as either primary or secondary dysmenorrhea (SD). Primary dysmenorrhea—defined as spasmodic and painful cramps in the lower abdomen that begin shortly before or at the onset of menses in the absence of any pelvic pathology—is one of the most common complaints in both young and adult females[4]. Dysmenorrheic pain has a clear and cyclic pattern, which is typically severe during the first day of menses and lasts up to 72 hours[5]. Despite its high prevalence of 70.2 % and impact on daily activities, it remains significantly underdiagnosed and inadequately treated, as many individuals do not seek medical attention, often choosing to suffer in silence due to cultural perceptions[2,3.]

Primary dysmenorrhea affects 45% to 95% of females during their childbearing years. It is particularly prevalent among young women, with 70% to 90% of those afflicted being under the age of 24. While many experience mild discomfort, 2% to 29% of women suffer from severe pain. This condition is a leading cause of school and work absenteeism, profoundly impacting the overall quality of life (QOL) for young females[7,10]. The pathophysiology of PD is primarily driven by an overproduction of uterine prostaglandins, specifically PGF2α and PGE2, during endometrial sloughing [11, 13]. These prostaglandins induce intense myometrial contractions and vasoconstriction, leading to uterine ischemia and the accumulation of anaerobic metabolites[12, 15]. Clinical studies have confirmed that dysmenorrheic females exhibit significantly higher prostaglandin concentrations in their menstrual fluid compared to eumenorrheic subjects, directly correlating with pain intensity[14, 15]. Beyond localized pain, the condition presents a complex array of systemic and psychological symptoms:

Physical & Systemic: Lethargy, fatigue, sleep disorders, headaches, and joint pain, including breast tenderness and swelling in the legs.

Gastrointestinal: Loss of appetite, nausea, vomiting, and bloating.

Psychological: Increased anxiety, nervousness, and depression

The rate of school absenteeism ranged between 14% and 51% among females with PD[10]. During menstrual periods, class attendance was reported to decrease by 29% to 50%[10]. Diagnosis is primarily clinical, focusing on a medical and menstrual history to exclude secondary causes [3, 13]. The use of non-pharmacological interventions is common among dysmenorrheic females. A recent meta-analysis, comprising 12,526 dysmenorrheic females, revealed that 51.8% adopted different non-pharmacological measures to cope with their menstrual pain act solely as an alternative therapy to minimize the side effects of drugs and analgesic dependency [16]. Yoga, an ancient practice combining physical postures, breath control, and meditation, has been shown to reduce sympathetic nervous system tone and increase vagal activity[21,22].

These physiological shifts promote the release of beta-endorphins and modulate neurotransmitters linked to emotional regulation, effectively alleviating both physical pain and psychological stress[18, 20]. Aerobic exercise, as defined by The American College of Sports Medicine (ACSM) as "any activity that uses large muscle groups, can be maintained continuously and is rhythmic in nature." including chair-based protocols, offers another accessible alternative. Aerobic activity utilizes large muscle groups and rhythmic movements to increase heart and lung function[17]. Specifically, chair aerobics—performed while seated—stimulates systemic circulation and helps clear metabolic waste from the muscles[24, 25].

The incorporation of structured warm-up and cool-down periods further reduces the risk of injury and muscle cramping, providing a low-impact method to manage the ischemic nature of dysmenorrheic pain[25]. Pain in general has a disabling nature and makes dysmenorrhea stressful and it can become an irritating factor in the lives of lots of young adult females. Some are completely cramped to bed and some are able to function in daily activities but with support of analgesics. However, analgesics are not an effective solution and increasing dependency. Therefore, this study was conducted to replace the medications with the exercises in primary dysmenorrhea. While several modalities like TENS and various exercise interventions have been studied individually for the management of primary dysmenorrhea, existing literature predominantly examines Yoga and Chair Aerobics in isolation or in comparison with other techniques[23, 25]. To date, there is a notable absence of research directly comparing these two specific interventions. So, the present study was conducted to evaluate the individual effects of Yoga and Chair Aerobics on reducing pain intensity and symptom severity, and to provide a direct comparison of their efficacy. By establishing the relative impact of these two interventions, this research aims to offer evidence-based, sustainable alternatives to medication, ultimately enhancing the functional and emotional well-being of young women.

METHODOLOGY

Sample Size & Study Design & Method:A total sample of 80 female participants was recruited and divided into two experimental groups. Group A (n=40) was assigned to a chair aerobics exercise protocol, while Group B (n=40) performed selected yogasanas; group allocation was conducted using a simple randomization method conducted over 6 months in Pune city.

Participants: Female diagnosed with Primary Dysmenorrhea with age ranging from 18-25 years.

Inclusion Criteria: 1. Female diagnosed with Primary Dysmenorrhea, 2. Age group 18-25 yrs, 3. Regular menstrual cycle (28-30 days),4. Pain intensity = ≥4 (on NPRS),5. Subjects having pain on the 1st day or entire period of menstruation, 6. Females who are willing to participate in the study, 7. Other symptoms during menstruation such as headache, nausea, etc.

Exclusion Criteria: 1. Irregular menstrual cycle, 2. Performing any kind of moderate to severe exercise regularly, 3. Professional athlete/ sports person, 4. Some Pelvic diseases such as PCOS, Endometriosis, fibroids, etc., 5. H/O recent hospitalization due to Gynecological condition, 6. Any recent medical, surgical or gynecological history (within 6 months), 7. Willingness to participate or not able to perform exercises.

Materials: 1.Pen, 2. Assessment sheet, 3. Consent Form, 4. Patient evaluation sheet, 5. Chair, 6. Yoga Mat.

OUTCOME MEASURES

Numerical Pain Rating Scale (NPRS): Pain intensity was assessed using Numerical Pain Rating Scale(NPRS). The 11-point numeric scale ranges from '0' representing one pain extreme (e.g. "no pain") to '10' representing the other pain extreme (e.g. "pain as bad as you can imagine" or "worst pain imaginable").The reliability of the scale is 0.96. The validity of the scale ranges from 0.86 to 0.95.

WaLIDD Questionnaire: The Working Ability, Location, Intensity, Days of Pain, Dysmenorrhea (WaLIDD) score is a validated, four-item, self-report tool used to measure the severity of menstrual pain (dysmenorrhea) and predict the need for medical leave. It assesses pain across four criteria (0-3 points each), with a total score ranging from 0 to 12. A higher score indicates greater pain severity and a higher probability of needing to skip work or school. Predictive validity (AUC of 0.97).

SF-36 (Short Form-36): It is a widely used, 36-item self-reported survey measuring health-related quality of life (HRQOL) across eight domains, including physical functioning, bodily pain, mental health, and social functioning. It produces scores from 0-100, where Lower scores (0) indicate more disability/poor health, while higher scores (100) represent better health. Highly reliable(>0.70 to 0.85) and strong construct and convergent validity, effectively distinguishing between different health groups and correlating well with related measures.

Procedure: Ethical clearance was taken from the ethical committee of Jayantrao College of Physiotherapy, TMV, Pune prior to the commencement of the study. Subjects were taken according to the inclusion and exclusion criteria.

After the procedure was explained and a written consent form was taken from the subjects.80 subjects were divided into 2 groups (Group A and Group B) randomly 40 subjects in each group. Group A: Chair aerobics; Group B: Yogasana Pre-assessment was taken by NPRS for severity of pain and WaLIDD Scores for severity of Dysmenorrhea on the 1st day prior to starting the exercise. Exercise started just after the end of the menstruation cycle. Post assessment was taken using the NPRS and WaLIDD scale based on the 1st menstrual cycle after the completion of intervention period (8 weeks).Subjects were asked not to take medicine to relieve menstrual pain during the intervention period.

Group A (n=40) were given Non-impacted Chair Aerobic exercises for 4 days per week for about 8 weeks, of which 1 session was done under supervision and remaining rest was recommended (Exercises were not performed during menstrual cycle). Pre-assessment was taken on the 1st day. The following exercises were performed by the subjects: 1) Knee lift 2) V Box Step 3) Jazz Stretch 4) Punch. Warm up for 5-10 minutes. Non-impacted Chair Aerobic exercises were performed for 25-30 minutes. 10 repetitions on each side. In between the rest time was provided. A cool down period for 5-10 minutes was given. The total duration of the exercise was around 40-45 minutes. Post assessment was taken at the end of 8 weeks. Group B (n=40) were given Yoga asana for 4 days per week for about 8 weeks, of which 1 session was done under supervision and remaining rest was recommended (Exercises were not performed during menstrual cycle). Pre-assessment was taken on the 1st day. The following asana were performed by the subjects: 1) Bhujangasana (cobra pose) 2) Matsyasana (fish pose) 3) Vajrasana (diamond pose) 4) Apasana (knee to chest pose) 5) Shavasana (Corpse Pose). Warm up for 5-10 minutes. Yoga asana performed for 35-40 minutes. Maintained each asana for at least 10-30 seconds for 5 repetitions. 30 seconds rest between 2 asanas were given. The rest of the time the subject could drink water 1 or 2 sips if she feels dehydrated. Cool down period for 5 minutes = Shavasana pose. The total duration of Yoga was around 45-50 minutes. Post assessment was taken at the end of 8 weeks.

STATISTICAL ANALYSIS: The data was collected, analyzed and was entered in an excel sheet, and statistical analysis was done using SPSS statistical package of social sciences version 28.0.1.1 software. Within Group Analysis was performed using Paired t-test to compare pre and post intervention values within groups. Comparison between two groups is performed using the Unpaired t-test to compare post intervention values of both groups. P-Value less than 0.05 considered significant, P-Value less than 0.001 considered highly significant, and P-Value greater than 0.05 considered not significant.

RESULTS

The present study included 80 subjects with primary dysmenorrhea who met the inclusion criteria. Two Groups 40 in each. Group A received Chair Aerobics and Group B received Yogasanas for primary dysmenorrhea. As shown in table 1, the mean for group A was 21.68±1.57 and for group B was 21.58±1.46 respectively. Most of the participants fell within the 21–25 age (66.25%), while the remaining 33.75% were aged between 18–20 years. There was no significant difference in mean ages as p value was 0.832. Demographic distribution was comparable across both Group A and Group B, ensuring baseline homogeneity. Enhanced Functional Quality of Life: There was a marked improvement in the WaLIDD and SF-36 scores. Notably, physical functioning scores improved by over 70% in both groups, suggesting that the interventions successfully reduced the interference of menstrual symptoms with daily activities and emotional well-being. Comparative Efficacy: While Group B (Yogasana) showed a slightly higher percentage improvement in the WaLIDD score (48.44% vs. 42.45%), both interventions proved statistically comparable. This suggests that the choice between yoga and aerobics can be based on participant preference or physical accessibility.

Clinical Equivalence in Pain Management: Post-intervention NPRS scores (3.95 vs 3.83) show no statistically significant difference (p=0.582). This confirms that both rhythmic aerobic movement and static yogic postures are equally effective in alleviating menstrual pain intensity. Parity in Quality of Life (QoL) Outcomes: The WaLIDD and SF-36 scores remained comparable between groups ($p > 0.05$). Whether participants engaged in aerobics or yoga, the resulting improvements in physical functioning, emotional health, and social engagement were of the same magnitude.

Practical Implications: Since both modalities are equally effective, clinicians and educators can offer patients a choice of intervention. This flexibility is particularly useful in community or university settings where space, equipment, or personal preference might dictate the choice of activity.

DISCUSSION

The findings of this experimental study conducted in Pune city demonstrate that both Chair Aerobics and Yogasana are highly effective non-pharmacological low impact exercises interventions for alleviating primary dysmenorrhea in females aged 18–25. Within-group analysis revealed that Group A (Chair Aerobics) experienced a significant 39.92% reduction in pain (NPRS), while Group B (Yogasana) showed a comparable 41.15% reduction (Durge, 2023).

The pain-relieving effects in the aerobics group are likely due to rhythmic, low-impact movements that enhance pelvic blood flow and trigger the release of endorphins—natural analgesics that counteract ischemia and muscle spasms. Similarly, the benefits in the Yogasana group stem from improved circulation to the pelvic region and the reduction of muscle tension through controlled breathing and specific postures. Statistical analysis indicates that both interventions are equally effective Yoga slightly higher, suggesting that either approach can be recommended as a viable non-pharmacological treatment for enhancing the quality of life in this population. Beyond pain relief, both groups showed remarkable improvements in Quality of Life (QoL) as measured by WaLIDD and SF-36 scores. Group A saw a 71.52% improvement in physical functioning, suggesting that cardiovascular stimulation effectively restores a participant's ability to perform daily activities without hindrance (Durge, 2023).

Table 1. Statistics of Age

Age Group	Group A	Group A	Group B	Group B	Total	Total
Age Group	N	%	N	%	N	%
18-20 Years	14	35.00%	13	32.50%	27	**33.75%**
21-25 Years	26	65.00%	27	67.50%	53	**66.25%**
TOTAL	40	100.00%	40	100.00%	80	**100.00%**

Table 2. Within-group analysis using paired t-test showed statistically significant improvement in NPRS scores in both Group A and Group B following intervention (p = 0.001). However, between-group comparison using unpaired t-test revealed no statistically significant difference between the two groups at baseline and post-intervention (p > 0.05)

Comparison	Comparison	Time Group	Time Group	N	Mean	SD	SE	t-value	p-value	% Change	Result
Within Group	Within Group	Pre	Group A	40	6.58	1.52	0.24	16.523	0.001*	39.92	Sig
NPRS Score		Post	Group A	40	3.95	1.01	0.16				
		Pre	Group B	40	6.5	1.54	0.24	15.789	0.001*	41.15	Sig
		Post	Group B	40	3.83	1.01	0.16				
Between Group	Between Group	Pre	A vs B	40	6.58 / 6.50	--	--	0.22	0.827	--	NS
NPRS Scores		Post	A vs B	40	3.95 / 3.83	--	--	0.553	0.582	--	NS

Table 3. Within-group analysis using paired t-test revealed statistically significant improvement in WALIDD and Pain scores in both Group A and Group B following intervention (p < 0.05)

Outcome Measure	Group	Time	N	Mean	SD	SE	t-value	p-value	% Change	Result
WALIDD Score	Group A	Pre	40	6.95	1.83	0.29	15.87	0.001*	42.45	Sig
WALIDD Score	Group A	Post	40	4	1.01	0.16				
WALIDD Score	Group B	Pre	40	7.23	2.07	0.33	19.17	0.001*	48.44	Sig
WALIDD Score	Group B	Post	40	3.73	1.32	0.21				
Pain Score	Group A	Pre	40	41.08	12.44	1.97	-13.083	0.001*	76.03	Sig
Pain Score	Group A	Post	40	72.31	11.84	1.87				
Pain Score	Group B	Pre	40	41.24	13.26	2.1	-15.792	0.001*	80.02	Sig
Pain Score	Group B	Post	40	74.24	10.63	1.68				

Table 4. Between-group comparison using unpaired t-test showed no statistically significant difference in pain scores between Group A and Group B at baseline and post-intervention (p > 0.05). However, within-group analysis using paired t-test demonstrated statistically significant improvement in general health scores in both groups following intervention (p < 0.05).

Pain Scores									
Time	Group	N	Mean	SD	SE	t-value	p-value	Result	% Change
Pre	Group A	40	41.08	12.44	1.97	-0.057	0.955	NS	
Pre	Group B	40	41.24	13.26	2.1				
Post	Group A	40	72.31	11.84	1.87	-0.767	0.445	NS	
Post	Group B	40	74.24	10.63	1.68				
General Health									
Pre	Group A	40	44.97	10.11	1.6	-16.043	0.001*	Sig	68.8
Post	Group A	40	75.91	9.24	1.46				
Pre	Group B	40	45.21	8.99	1.42	-16.169	0.001*	Sig	66.52
Post	Group B	40	75.28	9.28	1.47				

Table 5. Significant Pain Alleviation: Both groups achieved a substantial reduction in pain intensity (approx. 40-41%) as measured by the NPRS. The highly significant p-value (p < 0.001) confirms that these improvements were not due to chance but were a direct result of the exercise protocols

Outcome Measure	Group A (Aerobics)	Group B (Yogasana)	Statistical Significance
Pain Reduction (NPRS)	39.92%	41.15%	p < 0.001*
Quality of Life (WaLID)	42.45%	48.44%	p < 0.001*
Physical Function (SF-36)	71.52%	72.07%	p < 0.001*

Table 6. The comparative analysis reveals that Chair Aerobics and Yogasanas yield nearly identical therapeutic outcomes for primary dysmenorrheal

Variable	Group A (Aerobics)	Group B (Yoga)	P-value (Unpaired t-test)	Result
Post-NPRS	3.95 ± 1.01	3.83 ± 1.01	0.582	Not Significant
Post-WaLID	4.00 ± 1.01	3.73 ± 1.32	0.299	Not Significant
SF-36 Dimensions	High Improvement	High Improvement	> 0.05	Not Significant

Conversely, the Yogasana group demonstrated a profound 77.48% improvement in emotional well-being, highlighting the superior impact of yoga on reducing the psychological stress and anxiety that often exacerbate menstrual distress (Kirca& Celik, 2023). This aligns with the work of Prabhu *et al*. (2019), who noted that while aerobic exercise targets physical endurance, yoga practice uniquely fosters a "relaxation response" through neuromodulation. Both offer a "holistic recovery" path. As these interventions are equally effective in lowering pain and improving the Quality of Life (QoL), they should be integrated into community-based rehabilitation (CBR) and university wellness programs as cost-effective, accessible treatments for primary dysmenorrhea. The absence of a statistically significant difference between the two experimental groups suggests that the underlying therapeutic mechanisms of both interventions share a common physiological foundation. This parity, supported by the findings of Sakpal & Patil (2023), can be attributed to the following factors: Both Chair Aerobics and Yogasana protocols facilitate enhanced systemic blood circulation and the systemic release of endorphins—the body's natural analgesics. This commonality effectively addresses the primary triggers of dysmenorrhea by reducing pelvic ischemia and lowering overall stress levels, leading to nearly identical outcomes in pain relief and Quality of Life (QoL) scores to an identical duration and frequency of exercise. By maintaining a consistent eight-week protocol, the study allowed sufficient time for both regimens to induce meaningful physiological adaptations.

A Study done byOmidvar *et al*. in (2016), shows individual biological factors such as baseline fitness levels, pre-existing pain thresholds, and personal responses to exercise play a significant role in research outcomes. In this study, these individual variables likely balanced each other out across the two groups, contributing to the comparable effectiveness seen in post-intervention. From a practical standpoint, both interventions are highly accessible and can be integrated into daily life with minimal disruption. For Chair Aerobics, a regimen of 20–30 minutes of seated exercises—such as marches, leg lifts, and arm circles—performed four times a week is recommended for home or office settings (Sakpal & Patil, 2023). For Yogasana, a similar 20–30-minute sequence involving specific postures such as Bhujangasana, Matsyasana, Vajrasana, Apanasana, and Shavasana is recommended four times weekly to promote both physical and mental well-being (Kirca& Celik, 2023). Ultimately, because both interventions are equally effective, the choice of intervention can be personalized based on individual preference: those prioritizing cardiovascular health may opt for chair aerobics, while those seeking stress relief may find more benefit in yogasanas. One of the most compelling arguments for adopting Chair Aerobics and Yogasana is their superior safety profile compared to traditional pharmacological interventions. As highlighted by Omidvar *et al*. (2016), these non-pharmacological approaches circumvent the adverse side effects frequently associated with NSAIDs and hormonal contraceptives, such as gastrointestinal distress, potential dependency, and systemic hormonal imbalances. Beyond mere symptom management, these physical activities provide a holistic therapeutic effect by simultaneously enhancing cardiovascular endurance, muscular strength, and joint flexibility. By shifting the focus from passive medication to active movement, these interventions empower women to take a proactive role in their own recovery. This fosters a greater sense of autonomy and psychological well-being, addressing the menstrual experience not just as a clinical condition to be suppressed, but as a wellness journey to be managed through sustainable, health-promoting habits.

Strengths

High Reliability: Uses a randomized design with 80 participants and validated tools (NPRS, WaLIDD, SF-36), ensuring statistically significant results ($p < 0.001$).

High Accessibility: Proven efficacy of cost-effective, equipment-free, and non-pharmacological interventions that empower patients.

Limitations

- **Specific Group:** Findings are limited to the age of 18–25 and primary dysmenorrhea only.
- **No Long-term Data:** Lacks follow-up to check if benefits persist months after the 8-week program ends. Possibly no dropouts.
- Furthermore, the reliance on self-reported measures—such as the NPRS, WaLIDD , and SF-36—introduces a degree of subjectivity, as these tools can be influenced by individual perceptions and reporting biases (Berde *et al*., 2019)

Future Scope

Diverse Samples: Testing effectiveness across different age groups and secondary dysmenorrhea cases.

Biological Evidence: Incorporating hormonal testing (e.g., prostaglandin levels) for objective proof of relief.

Digital Integration: Developing mobile apps or virtual modules for widespread university wellness programs.

CONCLUSION

This study establishes Non-impacted Chair Aerobics and Yogasana as equally potent, non-pharmacological strategies for managing primary dysmenorrhea.

Through a consistent eight-week regimen, both interventions successfully mitigated pain intensity and enhanced health-related quality of life, proving that rhythmic movement and mindful postures are effective alternatives to traditional medication. These findings underscore the clinical value of accessible physical activity in providing a sustainable, side-effect-free approach to improving both the functional and emotional well-being of young women.

ACKNOWLEDGEMENT

We thank all the Participants in this study without whom this study would have been impossible. We also acknowledge Jayantrao College of Physiotherapy, Tilak Maharashtra Vidhyapeeth University (TMV), TMV Department of CBR and various other institutions for allowing us to conduct the study.

Conflicts Of Interest: None Declared

REFERENCES

Iacovides S, Avidon I, Baker FC. What we know about primary dysmenorrhea today: a critical review. Hum Reprod Update. 2015;21:762–78. doi: 10.1093/humupd/dmv039

Chen CX, Shieh C, Draucker CB, Carpenter JS. Reasons women do not seek health care for dysmenorrhea. J Clin Nurs. 2018;27:e301–8. doi: 10.1111/jocn.13946.

Proctor M, Farquhar C. Diagnosis and management of dysmenorrhoea. BMJ. 2006;332:1134–8. doi: 10.1136/bmj.332.7550.1134.

Sharghi M, Mansurkhani SM, Larky DA, Kooti W, Niksefat M, Firoozbakht M, *et al*. An update and systematic review on the treatment of primary dysmenorrhea. JBRA Assist Reprod. 2019;23:51–7. doi: 10.5935/1518-0557.20180083.

Proctor ML, Farquhar CM. Dysmenorrhoea. BMJ Clin Evid. 2007;2007:0813.

Chen L, Tang L, Guo S, Kaminga AC, Xu H. Primary dysmenorrhea and self-care strategies among Chinese college girls: a cross-sectional study. BMJ Open. 2019;9:e026813. doi: 10.1136/bmjopen-2018-026813.

Rafique N, Al-Sheikh MH. Prevalence of menstrual problems and their association with psychological stress in young female students studying health sciences. Saudi Med J. 2018;39:67–73. doi: 10.15537/smj.2018.1.21438.

Morrow C, Naumburg EH. Dysmenorrhea. Prim Care. 2009;36:19–32. doi: 10.1016/j.pop.2008.10.004.

Parra-Fernandez ML, Onieva-Zafra MD, Abreu-Sanchez A, Ramos-Pichardo JD, Iglesias-Lopez MT, Fernandez-Martinez E. Management of primary dysmenorrhea among university students in the south of Spain and family influence. Int J Environ Res Public Health. 2020;17:5570. doi: 10.3390/ijerph17155570.

Unsal A, Ayranci U, Tozun M, Arslan G, Calik E. Prevalence of dysmenorrhea and its effect on quality of life among a group of female university students. Ups J Med Sci. 2010;115:138–45. doi: 10.3109/03009730903457218.

Mendiratta V, Lentz GM. In: Comprehensive gynecology. 7th ed. Lobo RA, Gershenson DM, Lentz GM, editors. Philadelphia (PA): Elsevier Inc; 2017. Primary and secondary dysmenorrhea, premenstrual syndrome, and premenstrual dysphoric disorder; pp. 815–28.

Bernardi M, Lazzeri L, Perelli F, Reis FM, Petraglia F. Dysmenorrhea and related disorders. F1000Res. 2017;6:1645. doi: 10.12688/f1000research.11682.

Barcikowska Z, Rajkowska-Labon E, Grzybowska ME, Hansdorfer-Korzon R, Zorena K. Inflammatory markers in dysmenorrhea and therapeutic options. Int J Environ Res Public Health. 2020;17:1191. doi: 10.3390/ijerph17041191.

Chan WY, Hill JC. Determination of menstrual prostaglandin levels in non-dysmenorrheic and dysmenorrheic subjects. Prostaglandins. 1978;15:365–75. doi: 10.1016/0090-6980(78)90176-4.

Dawood MY. Primary dysmenorrhea: advances in pathogenesis and management. Obstet Gynecol. 2006;108:428–41. doi: 10.1097/01.AOG.0000230214.26638.0c.

Armour M, Parry K, Al-Dabbas MA, Curry C, Holmes K, MacMillan F, *et al*. Self-care strategies and sources of knowledge on menstruation in 12,526 young women with dysmenorrhea: a systematic review and meta-analysis. PLoS One. 2019;14:e0220103. doi: 10.1371/journal.pone.0220103.

Bucksworth, J; Dishman, R, 2003. “Human kinetics”. Exercise psychology.

Williams KA, Abildso C, Steinberg L, Doyle EJ, Epstein B, Smith D, Hobbs G, Gross R, Kelly G, Cooper L.Evaluation of the effectiveness and efficacy of iyengar yoga therapy on chronic low back pain. Spine 2009;34:2066-2076

Carlson KJ, Eisenstat SA, Ziporyn TD: The Harvard Guide to Women’s Health. Cambridge HarvardUniversity Press, 1996.

Rakhshaee Z. Effect of three yoga poses (cobra, cat and fish poses) in women with primary dysmenorrhea: a randomized clinical trial. Journal of Pediatric and Adolescent Gynecology 2011;24: 192–196.

Kiecolt-Glaser, J.K., Christian, L., Preston, H., Houts, C.R., Malarkey, W.B., Emery, C.F., Glaser, R., Stress,inflammation, and yoga practice. Psychosom. Med. 2010;72 (2):113–121.

Usha Nag, M.D., [Obg], Pg Dip, M.Sc [Yoga], Madhavi Kodali, M.D., D.P.M. Effect of Yoga on PrimaryDysmenorrhea and Stress in Medical Students. IOSR Journal of Dental and Medical Sciences. 2013 JanFeb;4(1): 69-73.

Shraddha Prabu, Sanket N, Ashok S, Parag S. Effect of Yogasanas on menstrual cramps in young adult females with primary dysmenorrhea. Int J Physiother Res 2019; 7 (4): 3109-12

Sakpal S, Patil C. Efficacy of Chair Aerobics and Progressive Muscle Relaxation in PrimaryDysmenorrhea. Journal of Coastal Life Medicine. 2023 Jul 14;11:1511-6.

Omnidvar S. Bakouel F. Amiri FN. Begum K. Primary dysmenorrhea and menstrual in Indian female students: prevalence, impact and management. Global journal of health science. 2016 Aug:8(8):135.

Kirca N. Celik AS. The effect of yoga on pain level in primary dysmenorrhea. Health care women international. 2023 May 4;44(5):601-20.

****